

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

-----: Atty.#: SSR-P1D
In Re U.S. Patent Application Of
:
FABLES, PARK
:
Serial No.: (Filed as Divisional Appl.
from Parent Appl. 09/157,212) : Examiner:
Filing Date: (Concurrently Herewith) : Group No:
:
Title: COMPUTER PROCESSING AND PROGRAM-
MING METHOD USING AUTONOMOUS DATA:
HANDLERS
-----:

PRELIMINARY AMENDMENT

Commissioner of Patents
U.S. Patent and Trademark Office
Washington, D.C. 20231

Sir:

Concurrently with the filing of the within Divisional Patent Application from the copending Parent Application 09/157,212, please preliminarily amend the claims in the Divisional Patent Application, as follows:

IN THE SPECIFICATION:

After the Title, insert the following paragraph --This U.S. patent application is filed as a copending division of U.S. Patent Application 09/157,212, filed on September 18, 1998 by the same inventors, now issued as U.S. Patent _____.

IN THE CLAIMS:

Please cancel Claims 1-20 and add the following claims:

--21. A distributed computing method comprising the steps of:

creating a plurality of software entities ("molecules") each of which is configured with software micro-components for sending and receiving communication signals to or from another molecule or logic web externally of the respective molecule, said micro-components of each molecule being operatively connected to each other for processing input data in a given computing environment in which said molecule is deployed and providing a resulting output of processing the input data;

deploying the plurality of molecules each on a respective one of a plurality of computing environments; and

initializing each molecule deployed in its respective computing environment to initiate a "logic web" of molecules of data processing functions in successive layers of incremental processing steps, with a first molecule invoking one or more other molecules to incrementally extend said logic web "on the fly".

22. A distributed computing method according to Claim 21, wherein each logic web in each computing environment performs its data processing functions in its respective computing environment autonomously, and returns an output which is desired to be obtained from that computing environment.

23. A distributed computing method according to Claim

22, wherein each logic web returns the output for its respective computing environment to an external monitoring entity, and said external monitoring entity combines the outputs from the other computing environments to obtain a combined output of distributed computing.

24. A distributed computing method according to Claim 23, wherein the computing environments are a plurality of computing sites distributed on a network, and the logic webs return their outputs by sending signals on the network.

25. A distributed computing method according to Claim 23, wherein the computing environments are a plurality of computing resources in an array of processing units (CPUs) operated in parallel in a parallel processing environment.

26. A distributed computing method according to Claim 21, wherein said software micro-components include a signal handler, at least one input handler, at least one output handler, an interface handler, and at least one method handler for an associated method, said at least one input handler being operative for queuing input data, said interface handler being operative for determining when a predefined input condition for required input data to be received by said input handler is fulfilled and then invoking said method handler, said method handler being operative for invoking said associated method for processing the input data, and said at least one output handler being operative for outputting a result of the processing of input data by said method.

27. A distributed computing method according to Claim 21, wherein said software micro-components are stored in a library for run time use, and during run time a logic web is deployed in a given computing environment by invoking a first molecule to be retrieved from the library and executed in the given computing environment, and said first molecule invoking one or more other molecules to incrementally extend said logic web "on the fly".

28. A distributed computing method according to Claim 21, wherein said creating step includes creating molecules having a handler function for creating next molecules in successive layers of incremental processing steps.

29. A distributed computing method according to Claim 21, wherein said creating step includes creating molecules having a built-in handler function for performing a clean-up of its functions when the molecule is to be terminated.

30. A distributed computing method according to Claim 21, wherein said creating step includes creating molecules having a handler type for recording information on the state of its micro-component handlers and signaling such state information externally through said signal handler.

31. A distributed computing method according to Claim 21, wherein said signal handler can receive signals for and has a handler type for dynamically reconfiguring the micro-component handlers of the molecule while it is in existence to perform a processing task.

32. A distributed computing method according to Claim 21, wherein said interface handler includes a handler type for providing the molecule with the characteristic of autonomously waiting, looking, and proceeding with said associated method for processing the input data by waiting until said input handler indicates that the predefined input conditions are present before invoking said method handler for the associated method.

33. A distributed computing method according to Claim 21, wherein said interface handler includes a plurality of handler types for determining when respective predefined input conditions for the presence of respectively required data is fulfilled and for invoking respective ones of a plurality of method handlers and associated methods.

34. A distributed computing method according to Claim 21, wherein said input handler is selected from one of a plurality of input handler types corresponding respectively to a plurality of different data source types.

35. A network computing method comprising the steps of:
creating a plurality of software entities ("molecules") each of which is configured with software micro-components for sending and receiving communication signals to or from another molecule or logic web externally of the respective molecule, said micro-components of each molecule being operatively connected to each other for processing input data in a given computing environment in which said molecule is deployed and providing a

resulting output of processing the input data;

deploying the plurality of molecules each on a respective one of a plurality of computing environments which are computing sites distributed on a network;

initializing each molecule deployed in its respective computing environment to initiate a "logic web" of molecules of data processing functions in successive layers of incremental processing steps, with a first molecule invoking one or more other molecules to incrementally extend said logic web "on the fly"; and

having each logic web at each network computing site perform its data processing functions in its respective computing environment autonomously, and returns an output which is desired to be obtained from that network computing site.

36. A network computing method according to Claim 35, wherein each logic web returns the output for its respective network computing site to a network monitoring entity, and said network monitoring entity combines the outputs from the network computing sites to obtain a combined output for the network.

37. A network computing method according to Claim 36, wherein the network is a network of networks ("the Internet"), and the logic webs are deployed at websites on the Internet to compute data autonomously from the websites and return their outputs to the network monitoring entity.

38. A network computing method according to Claim 35, wherein said software micro-components include handlers for processing data streams from different data sources and providing

the resulting processed data outputs to the network monitoring entity.

39. A network computing method according to Claim 38, wherein said software micro-component handlers of the molecules are configured to process respective media data streams in different formats from different media data sources and provide the media data streams reformatted to a desired file type to the network monitoring entity.

40. A network computing method according to Claim 39, wherein the network monitoring entity performs a high level function of monitoring different media data streams published in different formats from different sources on the network.--

REMARKS

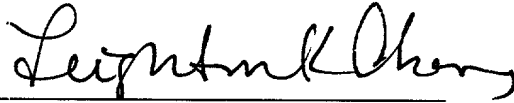
Claims 1-20 are cancelled and new Claims 21-40 are added directed to distinct subject matter of distributed and network computing methods in the invention. A clean printed copy of the added claims is appended.

The total number of claims and the total number of independent claims after amendment is equal to the number paid for with the filing of this application. However, if any additional fees are deemed to be due for acceptance of this Preliminary Amendment, authorization is given to charge our Deposit Account No. 15-0699.

CERTIFICATE OF MAILING:

The undersigned certifies that the foregoing is being mailed on July 20, 2001, by depositing it with the U.S. Postal Service, first class postage paid, addressed to Commissioner of Patents, Washington, D.C., 20231.

Respectfully submitted,
ATTORNEYS FOR APPLICANT



Leighton K. Chong
USPTO Reg. No. 27,621
OSTRAGER CHONG & FLAHERTY (HAWAII)
841 Bishop Street, Suite 1200
Honolulu, HI 96813-3908
Tel: (808) 533-4300

CLAIMS IN DIVISIONAL APPLICATION

21. A distributed computing method comprising the steps of:

5 creating a plurality of software entities ("molecules") each of which is configured with software micro-components for sending and receiving communication signals to or from another molecule or logic web externally of the respective molecule, said micro-components of each molecule being operatively connected to each other for processing input data in a given computing environment in which said molecule is deployed and providing a resulting output of processing the input data;

10 deploying the plurality of molecules each on a respective one of a plurality of computing environments; and

15 initializing each molecule deployed in its respective computing environment to initiate a "logic web" of molecules of data processing functions in successive layers of incremental processing steps, with a first molecule invoking one or more other molecules to incrementally extend said logic web "on the fly".

20 22. A distributed computing method according to Claim 21, wherein each logic web in each computing environment performs its data processing functions in its respective computing environment autonomously, and returns an output which is desired to be obtained from that computing environment.

25 23. A distributed computing method according to Claim 22, wherein each logic web returns the output for its respective computing environment to an external monitoring entity, and said external monitoring entity combines the outputs from the other computing environments to obtain a combined output of distributed computing.

30 24. A distributed computing method according to Claim 23, wherein the computing environments are a plurality of computing sites distributed on a network, and the logic webs return their outputs by sending signals on the network.

35 25. A distributed computing method according to Claim 23, wherein the computing environments are a plurality of computing resources in an array of processing units (CPUs) operated in parallel in a parallel processing environment.

40 26. A distributed computing method according to Claim 21, wherein said software micro-components include a signal handler, at least one input handler, at least one output handler, an interface handler, and at least one method handler for an associated method, said at least one input handler being operative for queuing input data, said interface handler being operative for determining when a predefined input condition for required input data to be received by said input handler is fulfilled and then invoking said method handler, said method handler being operative for invoking said associated method for processing the input data, and said at least one output handler being operative for outputting a result of the processing of input data by said method.

45 27. A distributed computing method according to Claim 21, wherein said software
micro-components are stored in a library for run time use, and during run time a logic web is
deployed in a given computing environment by invoking a first molecule to be retrieved from the
library and executed in the given computing environment, and said first molecule invoking one or
more other molecules to incrementally extend said logic web "on the fly".

50 28. A distributed computing method according to Claim 21, wherein said creating
step includes creating molecules having a handler function for creating next molecules in successive
layers of incremental processing steps.

55 29. A distributed computing method according to Claim 21, wherein said creating
step includes creating molecules having a built-in handler function for performing a clean-up of its
functions when the molecule is to be terminated.

60 30. A distributed computing method according to Claim 21, wherein said creating
step includes creating molecules having a handler type for recording information on the state of its
micro-component handlers and signaling such state information externally through said signal
handler.

65 31. A distributed computing method according to Claim 21, wherein said signal
handler can receive signals for and has a handler type for dynamically reconfiguring the micro-
component handlers of the molecule while it is in existence to perform a processing task.

70 32. A distributed computing method according to Claim 21, wherein said interface
handler includes a handler type for providing the molecule with the characteristic of autonomously
waiting, looking, and proceeding with said associated method for processing the input data by
waiting until said input handler indicates that the predefined input conditions are present before
invoking said method handler for the associated method.

75 33. A distributed computing method according to Claim 21, wherein said interface
handler includes a plurality of handler types for determining when respective predefined input
conditions for the presence of respectively required data is fulfilled and for invoking respective ones
of a plurality of method handlers and associated methods.

80 34. A distributed computing method according to Claim 21, wherein said input
handler is selected from one of a plurality of input handler types corresponding respectively to a
plurality of different data source types.

85 35. A network computing method comprising the steps of:
creating a plurality of software entities ("molecules") each of which is configured
with software micro-components for sending and receiving communication signals to or from
another molecule or logic web externally of the respective molecule, said micro-components of each
molecule being operatively connected to each other for processing input data in a given computing
environment in which said molecule is deployed and providing a resulting output of processing the
input data;

90

deploying the plurality of molecules each on a respective one of a plurality of computing environments which are computing sites distributed on a network;

initializing each molecule deployed in its respective computing environment to initiate a "logic web" of molecules of data processing functions in successive layers of incremental processing steps, with a first molecule invoking one or more other molecules to incrementally extend said logic web "on the fly"; and

having each logic web at each network computing site perform its data processing functions in its respective computing environment autonomously, and returns an output which is desired to be obtained from that network computing site.

36. A network computing method according to Claim 35, wherein each logic web returns the output for its respective network computing site to a network monitoring entity, and said network monitoring entity combines the outputs from the network computing sites to obtain a combined output for the network.

37. A network computing method according to Claim 36, wherein the network is a network of networks ("the Internet"), and the logic webs are deployed at websites on the Internet to compute data autonomously from the websites and return their outputs to the network monitoring entity.

38. A network computing method according to Claim 35, wherein said software micro-components include handlers for processing data streams from different data sources and providing the resulting processed data outputs to the network monitoring entity.

39. A network computing method according to Claim 38, wherein said software micro-component handlers of the molecules are configured to process respective media data streams in different formats from different media data sources and provide the media data streams reformatted to a desired file type to the network monitoring entity.

40. A network computing method according to Claim 39, wherein the network monitoring entity performs a high level function of monitoring different media data streams published in different formats from different sources on the network.